

Infusing Green and Sustainability Standards in the Career Clusters™ Knowledge and Skill Statements

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Project Background

- Genesis
 - U.S. Department of Education supported
 - Incorporate green standards into existing K&S statements developed for National Career Clusters™
- Collaborative Effort
 - U.S. Department of Education
 - MPR Associates, Inc.
 - National Career Technical Education Foundation
 - Vivayic, Inc.

Project Background (cont.)

- Two-Year Time line
 - Year 1: standards development
 - Year 2: validation and dissemination
- Broad Stakeholder Involvement
 - Subject Matter Experts (SMEs)
 - Debra Rowe, Senior Fellow in Education for Sustainability
 - Susan Gentile, Graduate Professor, Antioch University

Project Background (cont.)

- Technical Working Groups (TWGs)
 - Experts from the field
 - Six Career Cluster™ areas
 - Agriculture, Food & Natural Resources
 - Architecture & Construction
 - Information Technology
 - Manufacturing
 - Science, Technology, Engineering & Mathematics
 - Transportation, Distribution & Logistics

www.careertech.org/career-clusters/green/



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Green/Sustainability Knowledge & Skill Statements

PROJECT OVERVIEW

The goal of this U.S. Department of Education funded project is to incorporate green- and sustainability-related knowledge and skills standards into the existing National Career Clusters™ Framework. These standards followed a format used in the 2008 Knowledge and Skills Statements and represent an addendum to the statements.

States may, but are not required to, develop and implement career and technical education programs of study in one or more of the 16 Career Clusters™ identified by the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) that are recognized by the Office of Vocational and Adult Education (OVAE). The 16 Career Clusters™ are occupational categories with supporting industry-validated knowledge and skills statements that define what students need to know and be able to do in order to realize success in a chosen field. Within each of the Career Clusters™ and Career Pathways, programs of study have been developed that outline sequences of academic, career, and technical courses and training that begin as early as ninth grade and lead to progressively higher levels of education and higher-skilled positions in specific

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Standards Development

1. Initial training for TWG members
2. TWG evaluation of initial offering
3. Revisions by SMEs and project coordinator
4. Additional input by TWG via portal and meetings
5. Revisions by SMEs and project coordinator
6. Final review by TWG individuals
7. Validation and review via national, online process
8. Review by Career Cluster™ National Advisory Committees
9. Final layout and design for access via portal and website

Standards Development (cont.)

A “green” process—use of online, standards development portal

The screenshot shows a web browser window displaying the CareerClusters website. The address bar shows the URL <http://www.metacat.net/cte/app/?wicket:bo>. The page is titled "Search Results" and shows the user is signed in as "Seth Derner". The main content area displays the "Green Area" results for the "Green" Agriculture, Food and Natural Resources Cluster. The page includes a sidebar with "Properties" and "Disclaimer" sections, and a main content area with "Knowledge and Skill (KS) Statement" and "Performance Elements - Sample Indicators".

Search Results

Table Slide

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Properties (-)

Area
 "Green" Agriculture, Food and Natural Resources Cluster

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Green Area
"Green" Agriculture, Food and Natural Resources Cluster

Knowledge and Skill (KS) Statement
 Apply understanding of ecosystems and systems thinking to the management of natural resources to maximize the health and productivity of the environment, agriculture, communities, and society.

Performance Elements - Sample Indicators

1. Identify how environment, economy, and social equity impacts are or are not integrated in AFNR organizational systems.
 1. Research geographical and demographic data to recognize the relationships between environment, economy, and social equity in various geographic areas.
2. Explain restorative and sustainable (i.e., greening of the) terrestrial and aquatic management opportunities and fields.
 1. Evaluate the impacts on physical and biological ecosystem health, human health, and quality of life from a variety of AFNR management systems.
3. Evaluate the synergistic opportunities within and between AFNR fields that utilize whole systems critical thinking and actions for a more green and sustainable future.
 1. Evaluate the resiliency and potential of a variety of AFNR management systems to create beneficial impacts on both the human quality of life and the surrounding landscape or waterscape mosaic.
 2. Explain the dependence of a variety of AFNR management systems on the surrounding mix of landscapes, waterscapes, and ecosystems.

Standards Format

- Career Cluster™ K&S Statements as Model
 - Knowledge and Skill Statement – standard
 - Performance Element – definition of performance
 - Sample Indicators – examples of tasks or products

GREEN/SUSTAINABILITY STANDARDS


TRANSPORTATION, DISTRIBUTION, AND LOGISTICS CLUSTER—TRANSPORTATION SYSTEMS/INFRASTRUCTURE PLANNING, MANAGEMENT, AND REGULATION PATHWAY

	KNOWLEDGE AND SKILL STATEMENT	PERFORMANCE ELEMENT	SAMPLE INDICATORS
1	Understand the relationship among systems, equipment, and human behaviors related to environmental and human health.	1. Use systems thinking to address a problem or issue with transportation systems and infrastructure. 2. Identify effective strategies to influence human behavior in ways that lead to greater transportation efficiency.	1a. Explain the relationship of people, systems, goods, vehicles, and the environment in a given situation. 1b. Find examples of changes to transportation systems and infrastructure where there is evidence of systems thinking. 2a. List human behaviors that impact transportation systems and infrastructure. 2b. Describe strategies that have influenced behavior and led to greater transportation efficiency.


Standards Format (cont.)

- Cross-Cutting Standards
 - Covering 16 Career Clusters™
 - Define key terms and concepts
- Cluster-Specific Standards
 - Six selected Career Clusters™

Online Database





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PATHWAYS TO COLLEGE & CAREER READINESS
CareerClusters™

Collections

-  **Agriculture, Food and Natural Resources**
-  Architecture and Construction

Agriculture, Food and Natural Resources [Info/Getting Started](#)

Ready-made Excel Files by Cluster and Pathways below:


- [Agriculture, Food and Natural Resources.xls](#)
- [All Clusters and Pathways.xls](#)

Basic Search


Area

- ☒ **Cluster: Agriculture, Food and Natural Resources**
- ☒ **Pathway: Agribusiness Systems**
- ☐ Pathway: Animal Systems
- ☐ Pathway: Environmental S
- ☐ Pathway: Food Products ar
- ☐ Pathway: Natural Resource
- ☐ Pathway: Plant Systems
- ☐ Pathway: Power, Structura


Clear



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PATHWAYS TO COLLEGE & CAREER READINESS
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Search Results

☐ Show Icons View: 200

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Table	List	Slide
<p>Area</p> <p>CTC Number</p> <p>Common Career Technical Core Standard (CCTC)</p> <p>Performance Elements - Sample Indicators</p>	<p>Cluster: Agriculture, Food and Natural Resources</p> <p>AG 1</p> <p>Analyze how issues, trends, technologies, and public policies impact systems in the Agriculture, Food & Natural Resources Career Cluster™.</p> <ol style="list-style-type: none"> 1. Explain how regulations and major laws impact management of AFNR activities. <ul style="list-style-type: none"> Describe the major impacts of AFNR legislation. Describe the major regulations impacting the management of an individual resource. Identify situations that violate regulations. 2. Describe current issues impacting AFNR activities. <ul style="list-style-type: none"> Identify significant issues that impact work assignment. 3. Identify, organize alternatives, and evaluate public policy issues related to AFNR. <ul style="list-style-type: none"> Identify alternatives to an issue's potential solution. Evaluate alternatives for strengths and weaknesses. 4. Consider public input in decision-making for AFNR activities. <ul style="list-style-type: none"> Recommend a solution based on research and analysis. Conduct a local survey of public perceptions and desires concerning AFNR issues. 5. Explain the impact of sustainability on AFNR activities and practices. <ul style="list-style-type: none"> Identify significant environmental and economic issues facing AFNR. List the potential economic, environmental, and social costs and benefits of enacting sustainability initiatives in AFNR. 	<p> 1</p>
<p>Area</p> <p>CTC Number</p> <p>Common Career Technical Core Standard (CCTC)</p> <p>Performance Elements - Sample Indicators</p>	<p>Cluster: Agriculture, Food and Natural Resources</p> <p>AG 2</p> <p>Evaluate the nature and scope of the Agriculture, Food & Natural Resources Career Cluster™ and the role agriculture, food, and natural resources (AFNR) play in society and the economy.</p> <ol style="list-style-type: none"> 1. Examine company performance and goals within AFNR organizations and the AFNR industry. <ul style="list-style-type: none"> Examine the role and major functions of AFNR organizations to better utilize AFNR guidelines. Explain the major guidelines used by AFNR organizations to manage and improve performance while maintaining ecosystem health. Examine economic, social, and technological changes to spotlight their impact on AFNR organizations and the industry. Explain technological changes to reveal their impact on information technology and transportation. 2. Examine the role of AFNR in global, national, and regional economies. <ul style="list-style-type: none"> State the economic output of AFNR-related industries in the United States. Describe the role of global supply and demand on AFNR. Evaluate the impact of AFNR activities in your local community. 3. Explain the types of industries, organizations, and activities part of AFNR. <ul style="list-style-type: none"> Provide examples of AFNR organizations in each of the AFNR pathways. Explain the relationship between agriculture, food, and natural resources. Describe the role of government, multinational companies, regional companies, small businesses, entrepreneurs, and consumers in AFNR activities. 4. Explain the influence of AFNR on society. <ul style="list-style-type: none"> Identify ways in which the average person interacts with AFNR on a daily basis. Find examples of tradition, custom, or policy that result from practices in AFNR. Communicate the importance of AFNR to general public. 	<p> 2</p>
<p>Area</p> <p>CTC Number</p> <p>Common Career Technical Core Standard (CCTC)</p> <p>Performance Elements - Sample Indicators</p>	<p>Cluster: Agriculture, Food and Natural Resources</p> <p>AG 3</p> <p>Examine and summarize importance of health, safety, and environmental management systems in AFNR organizations.</p> <ol style="list-style-type: none"> 1. Examine health risks associated with a particular skill to better form personnel safety guidelines. <ul style="list-style-type: none"> Define what level of possible contamination or injury is considered a risk in order to set safety priorities. 	<p> 3</p>

Online Module and Guide

GreenStandardsIntro
Resources



Click on a button to learn more



Module Home Screen

An Introduction to the Green/Sustainability Standards for Career Clusters™

Overview

Background of Career Clusters™

The Need for Green Standards



Introduction to the Green Standards

Summary of Development Process

Application and Use of Green Standards

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PREV

Guide for Implementing Green Standards in the Career Clusters™

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1. Introduction to the Green Standards for Career Clusters™¶

The Office of Vocational and Adult Education, U.S. Department of Education, sponsored this effort to infuse green standards into the Career Clusters™ knowledge and skills statements. These green/sustainability-related statements can be used by state and local education agencies to inform sequences of academic, career, and technical courses and training. Green/Sustainability Standards provide supplemental standards that could be infused into the Career Clusters™ Knowledge and Skills Statements and/or Common Career Technical Core standards for CTE programs of study and courses.¶

Green Standards (also referred to as the Green/Sustainability Standards or Green/Sustainability Knowledge and Skills) have been identified to assist states and local programs to prepare individuals for an economy attuned to green and sustainability efforts by developing a set of green/sustainable knowledge and skills that apply across all Career Clusters™.¶

Further, the initiative developed additional standards specifically for six Career Clusters™ that

Standards Use

- Green K&S statements presented as supplemental compendium document (PDF)
- Green K&S statements also included with online CTE standards database
- States may be able to have CTE standards portal directly populate state database
- NCTEF will assume responsibility for maintaining and updating green K&S statements

Additional Information

NASDCTEc

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